



# SEQUENCE LISTING

<110> EnGene, Inc.  
Pownall, Scott  
Cheung, Anthony  
Hsu, Eric  
Doiron, Bruno

<120> CANCER TREATMENT BY METABOLIC MODULATIONS

<130> 029996-0306374

<140> 10/697,700

<141> 2003-10-29

<150> 60/422,365

<151> 2002-10-29

<160> 9

<170> PatentIn version 3.1

<210> 1

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: sense primer

<400> 1

gaccaattgt cgcgcttgcc acaacc

26

<210> 2

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: anti-sense primer

<400> 2

ctgctcgagc gcgccagcca ccaact

25

<210> 3

<211> 3807

<212> DNA

<213> Homo sapiens

<400> 3

gacatctccg ggaacccagc ccaggccctg cctcccggac acaccgacgc tcacgtagtc

60

gcgcttgcca caaccctgcg ggctctccga tgcggcgagc gagctgggga gggggcttct

120

ccgcggccca aaagcctggt catctagccc catgatggct gtggacatcg agtacagata

180

caactgcatg gctccttccct tgcgccaaga gaggtttgcc ttttaagatct caccaaagcc	240
cagcaaacca ctgaggcctt gtattcagct gagcagcaag aatgaagcca gtggaatggt	300
ggccccggct gtccaggaga agaaggtgaa aaagcgggtg tccttcgcag acaaccaggg	360
gctggccctg acaatggtca aagtgttctc ggaattcgat gacccgctag atatgccatt	420
caacatcacc gagctcctag acaacattgt gagcttgacg acagcagaga gcgagagctt	480
tgttctggat ttttcccagc cctctgcaga ttacttagac tttagaaatc gacttcaggg	540
cgaccacgtc tgccttgaga actgtgtgct caaggacaag gccattgcag gcaactgcga	600
ggttcagaac ctgcatttg agaagaccgt gaaaataagg atgacgttcg acacctggaa	660
gagctacaca gactttcctt gtcagtacgt gaaggacact tatgccgggt cagacagga	720
cacgttctcc ttcgacatca gtttgcccga gaagattcag tcttatgaaa gaatggagtt	780
tgctgtgtac tacgagtgc atggacagac gtactgggac agcaacagag gcaagaacta	840
taggatcatc cgggctgagt taaaatctac ccagggaatg accaagcccc acagtggacc	900
ggatttgga atatcctttg accagttcgg aagccctcgg tgttcctatg gtctgtttcc	960
agagtggcca agttacttag gatatgaaaa gctagggccc tactactagt gactgcaggt	1020
gacagggcgt ggcgagctg ccacagacaa gcctagctct gctcactgtg cagtggagat	1080
ggaaggccag ggaggagcaa cgtggaactt ccatgaggcc ccgtttggga aaataaaagg	1140
atcctcttca cttctttctt aaacagcaaa tccagccagg ttcagattac acaaccagt	1200
tctcactcaa aggagcagt gtggctggcg cgctttcgca ctgtggcagc cacgagagtc	1260
tgtgcacgtc tgtgctggaa agggatatga tgggaatcaa gcctatgcca gtgctgatga	1320
agctggagga gtctctcttc tgctctccac tcagatgtgg gacatcagtc gccaaaagcc	1380
actcagcccc agccacctcg cgtgagacct tcaactgttca ttgtgttcat ctttgggtgc	1440
tctctgccag ccaggccttt cctgcaagct gctgtgcttc cccgtccacg tgtatctctg	1500
ctgtgacaca ctgagctgac gcacatctcc agtgcagctg cagaagagaa atgggattgg	1560
ctcttgtttt ctgcaagttc atgttttgca ttttatgttc ttccacaatt gatctgatgt	1620
tcaggaaaag ataataaagg caaattagtt agtgggttag acaggcattt cctcctcccc	1680
cttcttgacc ccacagatgt attccagcag agagcaacac accagtcac aaaaccact	1740
ggctcctgtg cggtgtcaca gattgcaggg ttctgacaag gcaggacagt caagagtggg	1800
gacactttca gcttctactt ttgccttcta gggggagctt tctaagtccc cacatttacc	1860

ccgagtcacc	ggaaaaatct	gattttttccc	ccgaaagctc	aatgacttta	acgtgcttgg	1920
ctgggtttgtc	tcattcttta	tgaaagaatt	ttggggccgg	gcgcggtggc	ttatgcctgt	1980
aatcccagca	ctttgggagg	ccgaggcagg	tggatcacga	ggtcaggaga	tcgagaccat	2040
cctggctaac	acggtgaaac	cctgtctcta	ctaaaaatac	aaaaaaatta	gccaggcggtg	2100
gtggcgggcg	cctgtagtcc	cagctacttg	ggaggctgag	gcaggagaaat	ggcgggaacc	2160
tgggaggcgg	agcttacagt	gaaccgagat	cacaccactg	cattcccgcc	tgggcagcag	2220
agcgagactc	cgtctcaaac	agaaaaaaaa	agagaatttt	gaatctcctt	tcccaaagag	2280
tcatcttttc	tgctgtgttt	aggacatttg	atttgcatat	ccaatatctc	ctcgaaacct	2340
tcagaaaatg	gttttatcgt	gactgtgatt	cacactatct	agaacacttt	accagcaccc	2400
agggacatgg	acttgggtgt	tcttatttat	ggtgtgtatg	taaagagata	ggggagaaaa	2460
acctcaccca	agttcttata	cgttatttta	aacgtttgcc	aactctgaaa	tttcagagat	2520
tcattgttct	taaccatatt	ggactaaagt	ctgttgggta	gtgctgttgt	aaaagagacc	2580
tctggggccg	agtgtggtgg	cttatgcctg	taatccctgc	actttgggaa	gccaaggcgg	2640
gcagctcacc	tgaggtcagg	cgttcaagac	cagcctggcc	aacatggtga	aacctcgtct	2700
gtactaaaaa	tacaaaattt	agctgagtgt	ggtggcaggc	gcctgtaatc	cagctactcg	2760
ggaggctgag	gcaggagaaat	cacttgaacc	caggaggtgg	aggttgcagt	gagccgagat	2820
cacgtcactg	catttcagcc	tgagcgacag	agtgaactg	tctcaaaaaa	gagagacttc	2880
cgggacagtc	attatcagat	aggcccaaaa	cctgtgattt	ttcttgggca	agattggtgt	2940
ttacttaggg	gtgttttaaa	aatatatatt	tacaagtata	cttgtaggaa	gttggttttt	3000
tattttctat	ttttgtttgt	ttttggagtt	tggttaaacg	actcttttat	tttctgtttt	3060
gccttatctt	actaaagtga	agttttccta	aggcaagcaa	gaagaggagt	ggaagcacag	3120
ttgcctggat	ttggaggcag	agttgtcagg	cttttcaagc	taagagtctt	gtgcttggat	3180
tttcagatt	aatttgaaaa	gacctcccat	ttgtggcttt	gtacataacc	aacaggcaga	3240
tactgagtgc	cttggctcct	agagttttgt	ggttgggtta	ggttgttttt	gttgttgttt	3300
tgttttgggt	ttgttttcat	ttctgaagtt	taagatgcct	tgacttttta	aatgctctta	3360
aggctattcg	atgtaattct	tactcctaaa	actggctggt	cttagcctga	aatctaagtc	3420
tttgtttttt	gtacctctcc	cagggtgggt	acactctagg	atgacatgat	gttataattt	3480
taggggaaat	cacattttta	ccttatgctg	ttactgggca	gaaccacggt	ttatgtaaac	3540

ataccagaca tcgggtaaca gacagtactt taaatgttat aaatttggtg atcagaacta 3600  
 ttaatagcat aaatcgaact caaatggaag caaaactgat ttcatgcagg tcctgaattt 3660  
 tactttgcct taagaagtgc cctccccaca atgcaggaga ggcacagagt gcaactgtcat 3720  
 tgacatgtta cccgactaag gatcactctg ttcataagaa aaaggcctga agtgactctg 3780  
 ttttaataaag tcagtttaat tttatct 3807

<210> 4  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: sense primer

<400> 4  
 ggcaattgaa cggctagcct gaggagctgc 30

<210> 5  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: anti-sense primer

<400> 5  
 ccactagtgc gggtccctgc tctctgtcg 29

<210> 6  
 <211> 2691  
 <212> DNA  
 <213> Homo sapiens

<400> 6  
 cgccatggag accaacaccc ttcccaccgc cactccccct tcctctcagg gtccctgtcc 60  
 cctccagtga atcccagaag actctggaga gttctgagca gggggcggca ctctggcctc 120  
 tgattggtcc aaggaaggct ggggggcagg acgggaggcg aaacccttg aatattcccg 180  
 acctggcagc ctcatcgagc tcggtgattg gctcagaagg gaaaaggcgg gtctccgtga 240  
 cgacttataa aagcccaggg gcaagcggtc cggataacgg ctagcctgag gagctgctgc 300  
 gacagtccac tacctttttc gagagtgact cccgttgtcc caaggcttcc cagagcgaac 360  
 ctgtgcggct gcaggcaccg gcgcgtcgag tttccggcgt ccggaaggac cgagctcttc 420  
 tcgcggatcc agtgttccgt ttccagcccc caatctcaga gccgagccga cagagagcag 480

ggaaccgcat ggccaaagcc gcggcagtcg gcatcgacct gggcaccacc tactcctgcg	540
tgggggtgtt ccaacacggc aaggtggaga tcatcgccaa cgaccagggc aaccgcacca	600
ccccagcta cgtggccttc acggacaccg agcggctcat cggggatgcg gccaagaacc	660
aggtggcgct gaacccgcag aacaccgtgt ttgacgcgaa gcgcctgac ggccgcaagt	720
tcggcgaccc ggtggtgcag tcggacatga agcactggcc tttccaggtg atcaacgacg	780
gagacaagcc caaggtgcag gtgagctaca agggggagac caaggcattc taccgaggg	840
agatctcgtc catggtgctg accaagatga aggagatcg cgaggcgtag ctgggctacc	900
cggtagacaa cgcggtgac accgtgccg cctacttcaa cgactcgag cgccaggcca	960
ccaaggatgc ggggtgtgac gcggggctca acgtgctgcg gatcatcaac gagcccacgg	1020
ccgccgccat cgcctacggc ctggacagaa cgggcaagg ggagcgcaac gtcctgatct	1080
ttgacctgg cgggggcacc ttcgacgtgt ccatcctgac gatcgacgac ggcattctcg	1140
aggtgaaggc cacggccggg gacaccaccc tgggtgggga ggactttgac aacaggctgg	1200
tgaaccactt cgtggaggag ttcaagagaa aacacaagaa ggacatcagc cagaacaagc	1260
gagccgtgag gcggctgcgc accgcctgcg agagggccaa gaggaccctg tcgtccagca	1320
cccaggccag cctggagatc gactccctgt ttgaggcat cgacttctac acgtccatca	1380
ccagggcgag gttcgaggag ctgtgctccg acctgttccg aagcaccctg gagcccgtgg	1440
agaaggctct gcgcgacgcc aagctggaca agggccagat tcacgacctg gtcctggctg	1500
ggggctccac ccgcatcccc aaggtgcaga agctgctgca ggacttcttc aacgggcgcg	1560
acctgaacaa gagcatcaac cccgacgagg ctgtgggcta cggggcggcg gtgcaggcgg	1620
ccatcctgat gggggacaag tccgagaacg tgcaggacct gctgctgctg gacgtggctc	1680
ccctgtcgct ggggctggag acggccggag gcgtgatgac tgccctgac aagcgcaact	1740
ccaccatccc caccaagcag acgcagatct tcaccaccta ctccgacaac caaccgggg	1800
tgctgatcca ggtgtacgag ggcgagagg ccatgacgaa agacaacaat ctgttggggc	1860
gcttcgagct gagcggcatc cctccggccc caggcgtgcc ccagatcgag gtgaccttcg	1920
acatcgatgc caacggcatc ctgaacgtca cggccacgga caagagcacc ggcaaggcca	1980
acaagatcac catcaccaac gacaagggcc gcctgagcaa ggaggagatc gagcgcatgg	2040
tgcaggaggc ggagaagtac aaagcggagg acgagggtgca gcgcgagagg gtgtcagcca	2100
agaacgccct ggagtccac gccttcaaca tgaagagcgc cgtggaggat gaggggctca	2160

agggcaagat cagcgaggcc gacaagaaga aggtgctgga caagtgtcaa gaggtcatct 2220  
 cgtggctgga cgccaacacc ttggccgaga aggacgagtt tgagcacaag aggaaggagc 2280  
 tggagcaggt gtgtaacccc atcatcagcg gactgtacca gggtgccggt ggtcccgggc 2340  
 ctgggggctt cggggctcag ggtcccaagg gagggctctgg gtcaggcccc accattgagg 2400  
 aggtagatta ggggcctttc caagattgct gtttttgttt tggagcttca agactttgca 2460  
 tttcctagta tttctgtttg tcagttctca atttcctgtg tttgcaatgt tgaaattttt 2520  
 tgggtgaagta ctgaacttgc ctttttttcc ggtttctaca tgcagagatg aattttatact 2580  
 gccatcttac gactatttct tctttttaat acacttaact caggccattt tttaagttgg 2640  
 ttacttcaaa gtaaataaac tttaaaattc aagtgatgcc cttttattcc t 2691

<210> 7  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: sense primer

<400> 7  
 tcgggatcca atcaacctct ggattaca 28

<210> 8  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: anti-sense primer

<400> 8  
 tgctctagac aagcaacacg gacc 24

<210> 9  
 <211> 3308  
 <212> DNA  
 <213> Marmota monax

<220>  
 <221> misc\_feature  
 <223> Woodchuck hepatitis B virus

<400> 9  
 aattcgggac ataccacgtg gtttagttcc gcctcaaact ccaacaaatc gagatcaagg 60  
 gagaaagcct actcctccaa ctccacctct aagagatact cacccccact taactatgaa 120

aaatcagact	tttcatctcc	aggggttcgt	ggacggatta	agagacttga	caacaacgga	180
acgccaacac	aatgcctatg	gagatccttt	tacgacacta	agccctgtgg	ttcctactgt	240
atccaccata	ttgtctctc	catcgacgac	tggggaccct	gcacagtcac	cggagatgtc	300
accatcaagt	ctcctaggac	tcctcgcagg	attacaggtg	gtgtatttct	tgtggacaaa	360
aatcctaaca	atagctcaga	atctagattg	gtgggtggact	tctctcagtt	ttccaggggg	420
cataccagag	tgcactggcc	aaaattcgca	gttccaaact	tgcaaacact	tgccaacctc	480
ctgtccaccg	acttgcaatg	gctttcgttg	gatgtatctg	cggcgtttta	tcatatacct	540
attagtctctg	ctgctgtgcc	tcctcttctt	gttggttctc	ctggactgga	aaggtttaat	600
acctgtctgt	cctattcaac	ccacaacaga	aacgacagtc	aattgcagac	aatgcacaat	660
ctctgtacaa	gacatgtata	ctcctcctta	ctgttgttgt	ttaaaaccta	cggcaggaaa	720
ttgcacttgc	tggcccatcc	cttcatcatg	ggcttttagga	aattacctat	gggagtgggc	780
cttagcccg	ttctcttggc	tcaatttact	agtgcccttg	cttcaatgg	taggaggaat	840
ttccctcatt	gcgtggtttt	tgcttatatg	gatgatttgg	ttttgggggc	ccgcacttct	900
gagcatctta	ccgccattta	tacccatatt	tgttctgttt	ttcttgattt	gggtatacat	960
ttaaagtgtta	ataaaacaaa	atgggtggggc	aatcattttac	attttatggg	atatgtaatt	1020
actagttcag	gtgtattgcc	acaagacaaa	catgttaaga	aactttcccg	ttattttacgc	1080
tctgttctctg	ttaatcaacc	tctggattac	aaaatttgtg	aaagattgac	tgatatttctt	1140
aactatgttg	ctccttttac	gctgtgtgga	tatgctgctt	taatgcctct	gtatcatgct	1200
attgcttccc	gtacggcttt	cgttttctcc	tccttgata	aatcctgggt	gctgtctctt	1260
tatgaggagt	tgtggcccg	tgtccgtcaa	cgtggcgtgg	tgtgctctgt	gtttgctgac	1320
gcaaccccc	ctggctgggg	cattgccacc	acctgtcaac	tcctttctgg	gactttcgc	1380
ttccccctcc	cgatcgccac	ggcagaactc	atcgccgcct	gccttgcccg	ctgctggaca	1440
ggggctaggt	tgctgggcac	tgataattcc	gtgggtgtgt	cggggaagct	gacgtccttt	1500
ccatggctgc	tcgcctgtgt	tgccaactgg	atcctgcgcg	ggacgtcctt	ctgctacgtc	1560
ccttcggctc	tcaatccagc	ggacctccct	tcccagggcc	ttctgccgg	tctgcggcct	1620
ctcccgctc	ttcgctttcg	gcctccgacg	agtcggatct	ccctttgggc	cgcctccccg	1680
cctgtttcgc	ctcggcgctc	ggcccggtgt	gcttggtcgt	cacctgtgca	gaattgcgaa	1740
ccatggattc	caccgtgaac	tttgtctcct	ggcatgcaaa	tcgtcaactt	ggcatgccaa	1800

gcaaggacct ttggactcct tatataagag atcaattatt aactaaatgg gaggagggca	1860
gcattgatcc tagattatca atatttgtat taggaggctg taggcataaa tgcatgcgac	1920
ttccgtaacc atgtatcttt ttcacctgtg ccttggtttt gcctgtgttc catgtcctac	1980
tgttcaagcc tccaagctgt gccttggatg gctttggggc atggacatag atccttataa	2040
agaatttggg tcatcttata agttgttgaa ttttcttcct ttggacttct ttcctgatct	2100
taatgctttg gtggacactg ctactgcctt gtatgaagaa gaactaacag gtagggaaca	2160
ttgctctccg caccatacag ctattagaca agcttttagta tgctgggatg aattaactaa	2220
attgatagct tggatgagct ctaacataac ttctgaacaa gtaagaacaa tcattgtaaa	2280
tcatgtcaat gatacctggg gacttaaggt gagacaaagt ttatggtttc atttgtcatg	2340
tctcactttc ggacaacata cagttcaaga attttttagta agttttggag tatggatcag	2400
gactccagct ccatatagac ctctaatagc acccattctc tcgactcttc cggaacatac	2460
agtcattagg agaagaggag gtgcaagagc ttctaggtcc cccagaagac gcactccctc	2520
tcctcgcagg agaagatctc aatcaccgag tcgcagacgc tctcaatctc catctgccaa	2580
ctgctgatct tcaatgggta cataaaacta atgctattac aggtctttac tctaaccaag	2640
ctgctcagtt taatccgcat tggattcaac ctgagtttcc tgagcttcat ttacacaatg	2700
aattaattaa aaaattgcaa cagtattttg gtccccctgac tataaatgaa aagagaaaat	2760
tgcaattaa ttttctgca agatttttcc ccaaagccac taaatatttt cctttaatta	2820
aaggcataaa aaacaattat cctaattttg ctttagaaca tttctttgct accgcaaatt	2880
atttgtggac tttatgggaa gctggaattt tgtatttaag gaagaatcaa acaactttga	2940
cttttaaagg taaaccatat tcttgggaac acagacagct agtgcaacat aatgggcaac	3000
aacataaaaag tcaccttcaa tccagacaaa atagcagcgt ggtggcctgc agtgggcact	3060
tattacacaa ccacttacc tcagaaccag tcagtgttcc aaccaggaat ttatcaaaca	3120
acatctttgg taaatcccaa aactcaacaa gaactggact ctgttctcat aaacagatac	3180
aaacagatag attggaacac ttggcaagga tttcctgtcg atcaaaaaact accattggtc	3240
aacagggatc ctcccccaaa atcagctcaa actttcgaaa tcaaacctgg gcctataata	3300
gttcctgg	3308